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November 14, 1988

Donna R. Searcy
Secretary
Federal Communications Commission
Washington, D.C. 20554

Re: MM Docket 87-268; CCB File Nos. W-P-C-5927 and 6250

Dear Madame Secretary:

Submitted herewith for filing are an original and five copies of the Comments of GTE Service Corporation in the Advanced Television Systems Inquiry, MM Docket 87-268.

Since the Comments refer to the above-captioned Cerritos, California Section 214 applications of GTE California, we ask that a copy also be placed, pursuant to Section 1.1206(b)(8) of the Commission's Rules, in W-P-C-5927 and W-P-C-6250. Two copies are included for that purpose.

Please direct any questions to the undersigned.

Sincerely,

James R. Hobson

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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems and Their Impact on the Existing Television Broadcast Service	)	
	)	
Review of Technical and Operational Requirements Part 73-E, Television Broadcast Stations	)	MM Docket No. 87-268
	)	
Reevaluation of the UHF Television Channel and Distance Separation Requirements of Part 73 of the Commission's Rules	)	

COMMENTS OF GTE SERVICE CORPORATION

GTE Service Corporation on behalf of itself and its affiliates, the GTE domestic telephone companies ("the GTOCs") and GTE Laboratories, pursuant to the Tentative Decision and Further Notice of Inquiry, FCC 88-288, released September 1, 1988 ("Further Notice"), hereby provides its comments in the above-captioned proceeding.

After establishing an advisory committee to investigate several technical and policy issues covering Advanced Television ("ATV") service the Commission has tentatively concluded that: 1) ATV can best be brought to the public by using existing television broadcast allocations; 2) ATV service must not be permitted to undermine the huge investment in existing NTSC receivers; and, 3) additional information on ATV

systems, including bandwidth requirements and specific technical characteristics, is needed. The Commission Further Notice seeks comment on these and associated issues.[1/]

BACKGROUND

This inquiry is the result of an initiative in the form of a Petition before the Commission by the Association of Maximum Service Telecasters, Inc. and 57 other broadcast organizations to investigate the technical and policy issues relating to ATV. To complement the inquiry Chairman Patrick established an Advanced Television Service Advisory Committee.[2/] Three subcommittees and associated Working Groups were open to all interested parties. GTE representatives participated in the Planning and Systems subcommittees and the Systems subcommittees' systems analysis and economic analysis Working Groups. These groups continue to meet and GTE intends to make a substantial contribution.

GTE has more than a passing interest in emerging telecommunications transmission technologies. For example, GTE Spacenet provides video transport for television programming

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1/ See Notice at ¶¶154-156.

2/ See Notice of Inquiry, RM-5811, MM Docket 87-268, FCC 87-246, released August 20, 1987, ¶2; FCC News Release, October 9,1987.

and video conferencing. Through several unregulated businesses GTE provides transport services to help broadcasters cover sports, entertainment and political events. GTE Laboratories and other GTE entities continually evaluate and test video transport systems, transmission-reception technology, and channel capacity questions. GTE Laboratories has done research on bandwidth efficient video transmission on fiber optic transmission systems; current laboratory systems carry in excess of 100 analog video channels, in addition to digital ISDN channels, on a single fiber. GTE Laboratories is also pursuing research on bandwidth compression using advanced signal processing techniques and on packetized video transmission.

Earlier this year the Common Carrier Bureau approved GTE California's Section 214 application to build coaxial broadband facilities in Cerritos, California for its customers, Apollo Cablevision and GTE Service Corporation.[3/] On June 28 GTE California filed a companion 214 application for a fiber facilities test bed. Upon authorization by the FCC, GTE will be able to compare copper wire, coaxial and fiber optical facilities as alternative transmission media for voice, data, and video applications. The Cerritos experiments will investigate numerous new technologies and innovative telecommunications services, and ATV is expected to play an important part in these tests.

3/ See W-P-C-5927, Common Carrier Bureau Order, DA 88-504, released April 12, 1988, Applications for Review pending.

The on-going development of new services by various GTE subsidiaries, the research projects of GTE Laboratories, and the exciting possibilities inherent in the Cerritos Test Bed are all part of a larger environment of advancing technological possibilities. ATV is viewed as a new and exciting service on the threshold of commercial development.

DISCUSSION

A. Spectrum Issues

GTE SUPPORTS EXPEDITIOUSLY COMPLETING TECHNICAL TESTS BEFORE ESTABLISHING ANY PARTICULAR SPECTRUM PLAN

The Commission has requested comment on the four spectrum plans that range from allocating no additional spectrum to allocating 6 MHz as an augmentation channel or using a simulcast approach. GTE agrees with the broadcasters who have commented that it is simply too early to decide if 6 MHz is sufficient bandwidth to provide an ATV service that could effectively compete with High Definition Television ("HDTV") delivered by other media.[4/] With present technology, cable operators, who retransmit a large portion of their programming from broadcasters, claim they will face difficult compatibility and capacity problems if more than 6 MHz broadcast ATV service

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4/ See Further Notice at ¶42.

is implemented. Some of today's coaxial cable systems (which average nationally 36 channels per system) utilize all of their available channel capacity. In those systems using more bandwidth for terrestrial broadcast ATV Systems could mean that existing cable systems would carry fewer channels per system. Further, if only a few channels on a coaxial system are made available for ATV, then most video programmers on that system would be precluded from offering ATV programs. Additionally, the cable industry's headend equipment and converter base may need to be upgraded.5/

In addition to the above limitations of current technology, the Commission wants to implement ATV within the existing VHF and UHF spectrum. The Commission recognizes that "severe spectrum constraints exist" and that interested parties should design systems within these constraints, while recognizing over-the-air broadcasters may not be competitive in the long run if restricted to a 6 MHz ATV format now.6/

GTE, through its on-going research efforts, seeks to assist the Commission and video providers generally in working toward a technical solution that will permit all present parties and alternative media providers to successfully research, deploy, and market viable ATV services. While GTE's experience is limited in terrestrial over-the-air video broadcast issues, we can still be of help. Through GTE Laboratories' expertise in fiber and GTE California/GTE Service Corporation experiments in

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5/ Further Notice at ¶45.

6/ Id. at ¶81.

Cerritos, the company is in a unique position to perform important tests of various ATV signals.

In summary, GTE agrees that further technical tests are necessary to determine the most efficient use of spectrum for broadcast ATV systems. GTE through its research facilities and capabilities seeks to co-operate with those parties who desire to more fully analyze the technical, operational, and marketing issues challenging ATV deployment.

COOPERATIVE EFFORTS AMONG INTERESTED PARTIES ARE NECESSARY TO DETERMINE THE IMPACT OF THE FCC'S TENTATIVE CONCLUSION ON THE QUALITY OF BROADCAST ATV

The Commission is fearful that a 6 MHz NTSC-compatible system may not offer broadcasters the kind of quality to effectively compete in the marketplace.[7/] Both the 3 MHz augmentation approach and the supplemental 6 MHz approach could offer the broadcasters a feasible approach. These proposals may well prove to be the best long-term solution to achieve the quality objectives that GTE feels are important to American consumers. The Advisory Committee interim Report at 8 urges further spectrum analysis and the Commission's Further Notice at ¶94 wants to quickly conclude all technical analysis.

GTE urges that these tests include not only technical possibilities but also an analysis of ATV quality to insure

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7/ Id. at ¶86.

that broadcasters remain viable in the ATV market. An important part of spectrum tests should include any systems designed to interface with alternative transmission media. GTE's Cerritos test bed could provide a meaningful laboratory for both interface experiments and "real world" analysis of comparative quality of different ATV systems.

B. Standards

FURTHER TECHNICAL INFORMATION IS REQUIRED BEFORE STANDARDS CAN BE REALISTICALLY IMPLEMENTED

The Commission agrees with those parties that believe it is premature to adopt an ATV standard at this time.[8] Although it is true that some feel the highly developed Japanese MUSE system may begin infiltrating the U.S. market early in the next decade, research on the transmission of HDTV through broadcast and cable media in this country is just beginning. GTE agrees with former FCC Chairman Wiley who has observed, "we cannot afford to rush to judgment" now by setting a premature standard for advanced TV transmission.[9]

It is true that a single standard can point all interested parties in the same direction.[10] However, a single standard

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[8] See Further Notice at ¶113.

[9] National Journal, "Looking Sharp", July 16, 1988 at 1861.

[10] See Further Notice at ¶113.

could also prove to be a straitjacket that would deny end users more advanced technology and more sophisticated services.

With various alternative media having diverse technological and service capabilities, a single ATV standard could handicap the broadcast and cable industries at the outset. GTE maintains that flexible standards, or a standard that respects the service capabilities of alternative media, is an important issue and requires further study by all interested parties. Because the U.S. ATV industry is playing "catch-up" with their European and Japanese counterparts, GTE suggests that firm recommendations on the standards issue come from the Advisory Committee within a reasonable period after the completion of this pleading cycle.

Any standard(s) adopted should insure high quality service to the consumer. Also, any standard(s) developed should encourage the provision of "sophisticated services" by way of a feature-rich telecommunications network. The intelligence in telecommunications networks could expand the availability of some sophisticated services to people that could not afford the very expensive terminal equipment.

TRANSPORT SYSTEMS ARE POSSIBLE THAT CAN EASE THE TRANSITION FROM TODAY'S VIDEO NEEDS TO TOMORROW'S AND THUS SUPPORT NATURAL MARKET SELECTION OF ALTERNATIVE TV SYSTEMS

As ATV sets become available, each U.S. home is likely to have multiple NTSC-compatible sets of different levels of quality. It is unlikely that a consumer will change out all of

his or her sets to ATV at one time. Thus there will be a need to transport more than one type of TV signal -- such as todays's NTSC format, improved formats within 6 MHz, enhanced definition television formats, up to the highest quality HDTV format. Transporters of television signals, whether over-the-air broadcasters, cable television operators, telephone companies, or others must respond to the market reality that consumers will expect that all sets will remain operational as the world transitions to ATV (i.e. NTSC-compatible). It is possible, in networks utilizing switched video via fiber, to deliver to each particular set the signal appropriate for it. Thus, a consumer's selection of TV equipment would not be constrained by any network limitations to deliver the appropriate signal that takes full advantage of that set's capabilities. Consequently, market demand for ATV would decide which system prevails.

GTE is willing to work through this proceeding, the Advisory Committee or any other forum to understand the needs of the traditional broadcast and cable television industries. If transport networks were available that possessed the enhanced functionality mentioned above would, broadcasters and cable operators use it? If it is technically possible to assist traditional broadcasters in remaining competitive in this new and exciting field, avenues of communication between non-traditional participants in video services and the present providers should open immediately. There is much research that needs to be done in a relatively short period of time. The

traditional broadcasters have established an Advanced TV test center ("ATTC"). GTE is willing to work with this group in testing standards for both over-the-air and land-based ATV transport alternatives on the Cerritos fiber optic test bed. The Cerritos test bed in California could easily accommodate such important tests.

CONCLUSION

GTE submits that many technical and policy questions remain unanswered. Further experiments are required just to establish what is possible with current and expected technology. GTE, through its Cerritos test bed and other research capabilities, is eager and well-prepared to participate in the needed experiments. Once the technical questions are explored and more information is available on potential ATV markets, policy formation will appropriately begin. GTE believes that technology and consumer demand will drive policy. American industry must move swiftly to seize opportunities presented by ATV.

Respectfully submitted,

GTE SERVICE CORPORATION

By _____

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ITS ATTORNEY